Abstract

Security in wireless ad-hoc networks is a complex issue. The wireless and dynamic nature of ad-hoc networks makes them more vulnerable to security attacks when compared with fixed networks. The existing routing protocols are optimized to perform the routing process without considering the security problem. Black hole attack is one of the routing attacks in which, a malicious node uses the routing protocol to advertise itself as having the shortest path to the node whose packets it wants to intercept. In this paper we propose a certificate based authentication mechanism to counter the effect of black hole attack. Nodes authenticate each other by issuing certificates to neighboring nodes and generating public key without the need of any online centralized authority. The proposed scheme is implemented in two phases: certification phase and authentication phase following the route establishment process of On Demand Multicast Routing Protocol (ODMRP). The effectiveness of our mechanism is illustrated by simulations conducted using network simulator ns-2.

Reference
Black Hole Attack Prevention in Multicast Routing Protocols for Mobile Ad hoc networks using Certificate Chaining


Ruidong Li, Jie Li, Hisao Kameda and Peng Liu, Localized Public Key Management for mobile ad hoc networks, IEEE Communications Society, 2004, 1284-1289


Index Terms

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Network Security
Key words

MANET
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